MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 3, 2015/2016

TCP1311 – OBJECT-ORIENTED PROGRAMMING

(All Sections / Groups)

30 MAY 2016
9.00 a.m - 11.00 a.m
(2 Hours)

Question	Marks
Total	

INSTRUCTIONS TO STUDENTS

1. This question paper consists of 5 pages with 4 Questions only .

2. Attempt ALL **FOUR** questions. All questions carry equal marks and the distribution of the marks for each question is given.

3. Please print all your answers in the question paper provided.

Question 1 (10 marks)

a) What is the definition of object and a class in object oriented concept? Give one example of real word object and class.

(3 marks)

b) Java is an object oriented programming language.

i) Please list at least 3 key features of Java
ii) 2 advantages object oriented programming
iii) List another object oriented languages other than Java (5 Marks)

c) What is the difference between a java applet and a java application? (2 marks)

Question 2 (10 marks)

a) Find the error(s) in the following program and re-write to correct it.

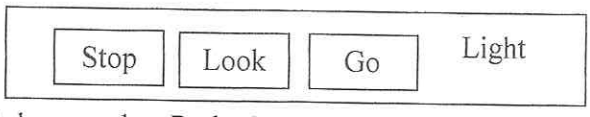
(4 marks)

```
public static method (string a)
(
      system.out.print(a);
)
```

Continued...

b) Complete the Java applet with three buttons (marked "Stop","Look","Go",) and a label "Light" , as shown below. (6 marks)

Applet window



The buttons must have color Red, Orange, Green color for "Stop","Look","Go" button respectively. When a button is clicked, the color of your Light must change to the color of the button

```
import java.awt.*;
import java.applet.*;
import java.awt.event.*;

public class MyApplet extends Applet _____(i)_____ {
                //0.5 mark
   Button b1=_____(ii)  //.25 mark
   Button b2=_____(iii) //.25 mark
   Button b3=_____(iv) //.25 mark
   Label l1= _____(v)   //.5 mark
 //0.5  mark each x 4


   public void _____(vi)(){    //0.5 mark
     b1.setBackground(_____(vii)__);//.25 mark
     b2.setBackground(_____(viii)_);//.25 mark
     b3.setBackground(_____(ix)___);//.25 mark

     add(b1);
     add(b2);
     add(b3);
     _____(x)//.5 mark
     b1.addActionListener(this);
     b2.addActionListener(this);
     b3.addActionListener(this);
 }

   public void _____(xi)_____(ActionEvent e){ //.5 mark
    if(____(xii)____==b1)
      l1.setForeground(Color.red);
    else if(____(xii)____ ==b2)
      l1.setForeground(Color.orange);
    else if(____(xii)____ ==b3)
    l1.setForeground(Color.green);//xii all 3 same answer 0.5
mark
   }
}
```

Continued...

Question 3 (10 marks)

a) Given the list of classes below, draw a class diagram that shows their relationships and the multiplicities where appropriate.

Animal, Penguin, Cat, Fish, Legs

(4 marks)

b) The following figures illustrate a pair of classes for each case.

i. Computer Table

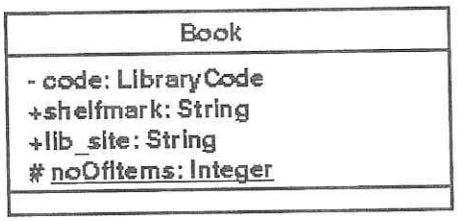
ii. House Window

iii. Animal Elephant

State the most appropriate relationship between the pair of classes and draw connections between them using the corresponding UML symbol for each case.

(3 marks)

c) Write the java code to represent the Book class below. (3 marks)



Continued...

Question 4 (10 marks)

a) Show the output of the following program/segments: (3 marks)

```
public class Q4a {
  public static void main(String args[])
  {
    MyTest mark1 = new MyTest();
    System.out.println("Object1: qq is = "+mark1.qq + " t is = "+ mark1.t);

    MyTest mark2 = new MyTest();
    System.out.println("Object2: qq is = "+mark2.qq + " t is = "+ mark2.t);
  }
}//end class Q4a

class MyTest
{
  static int qq = 6;
  int t = 0;

  MyTest ()
  {
    qq++;
    t = 3;
  }
}//end class MyTest
```

b) The class "Hello" is a subclass of applet and the paint method uses an object of Graphics as an argument.
Draw the class diagram for "Hello" applet and its parent. (4 marks)

c) Write an appropriate java code for the class diagram in question 4b) (3 marks)

End of Paper